A.I.A. FILE 35-P-2
LEMLAR 1959

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LEMLAR SUN LOUVERS
and COMPLETELY AUTOMATIC SUN LOUVER SYSTEMS

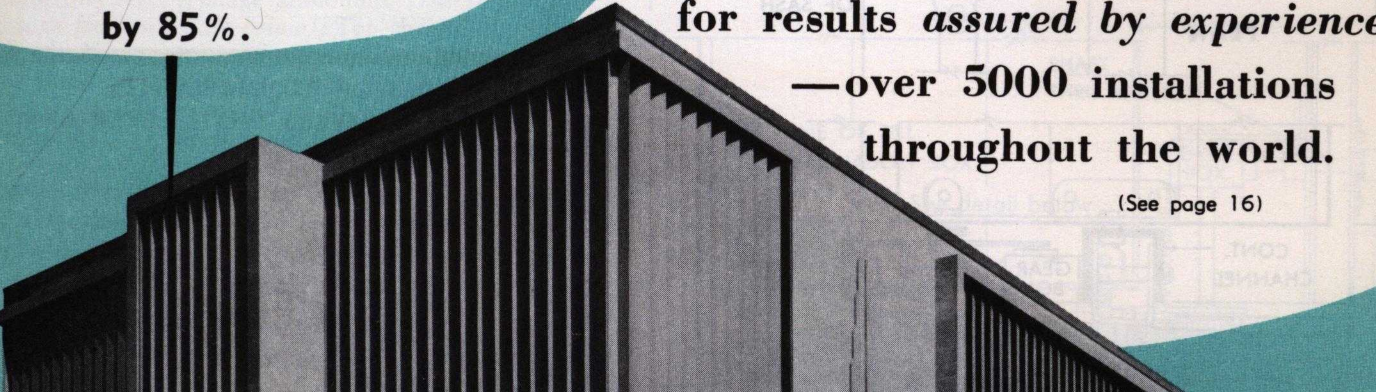
SOLAR CONTROL

1959
catalog

Exterior shading will reduce solar heat load at windows by 85%.

SPECIFY *LEMLAR* SUN LOUVERS for results *assured by experience* —over 5000 installations throughout the world.

(See page 16)



A.I.A. FILE 35-P-2
LEMLAR 1959

CIVIL COURTS BUILDING, Fort Worth, Texas

HEDRICK and STANLEY, Architects & Engineers
Fort Worth

BUTCHER & SWEENEY, Contractors

LEMLAR Type VA-27 Sun Louvers, automatically controlled, with Photoelectric over ride

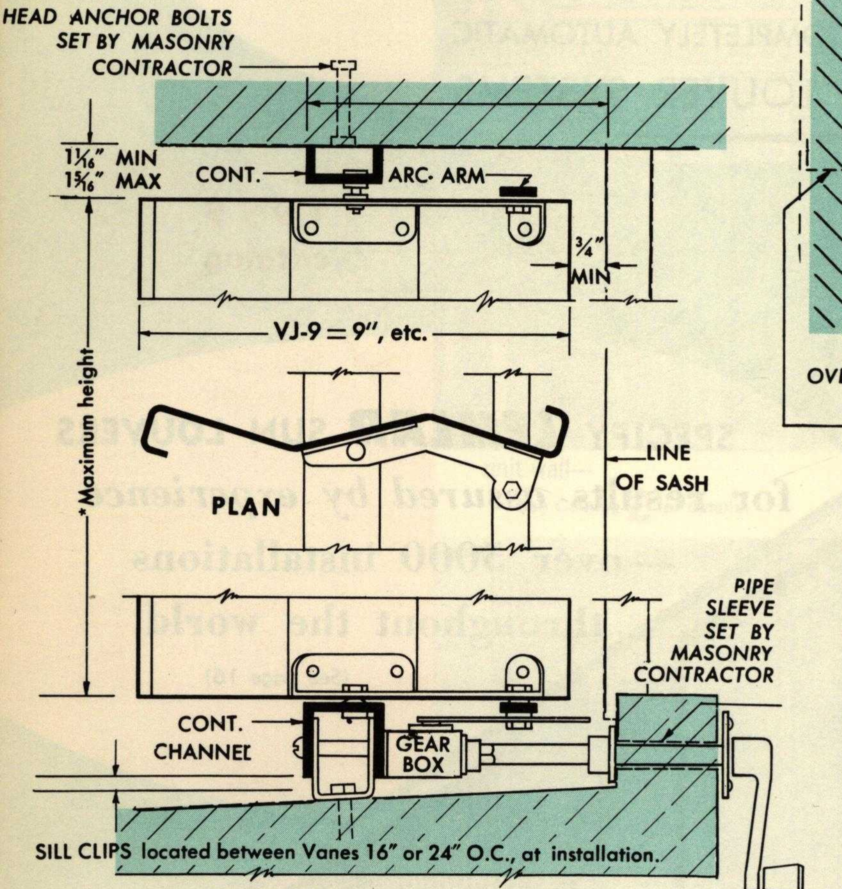
a 1958 installation by

LEMLAR MANUFACTURING COMPANY
GARDENA, CALIFORNIA

DIVISION OF LEMLAR CORPORATION
Phone: FAculty 1-1461 (Los Angeles)

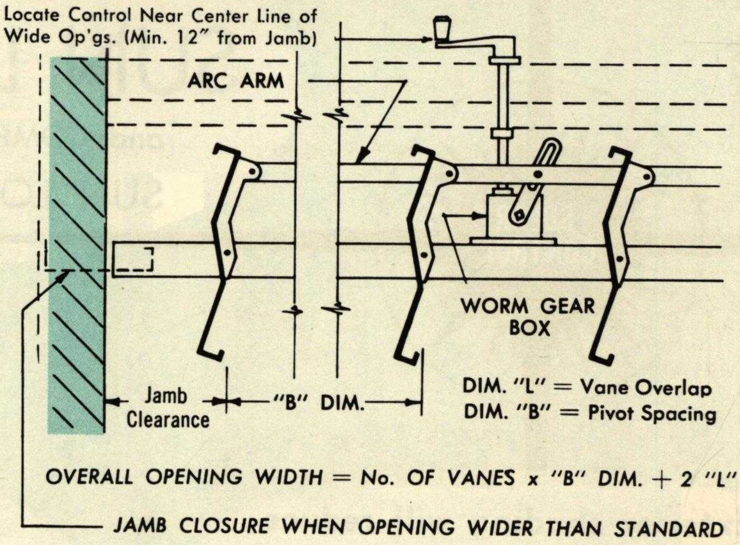
VERTICAL, TYPE VJ

OPERATOR DETAILS for installations under 150 square feet in area


HEAD ANCHOR BOLTS SET BY MASONRY CONTRACTOR
1 1/16" MIN
1 5/16" MAX
CONT.
ARC ARM
3/4" MIN
VJ-9 = 9", etc.
*Maximum height
PLAN
LINE OF SASH
PIPE SLEEVE SET BY MASONRY CONTRACTOR
CONT. CHANNEL
GEAR BOX
SILL CLIPS located between Vanes 16" or 24" O.C., at installation.
CONTROL CRANK

SECTION "A" SCALE: 3" = 1'-0"

Limitation: Bottom of louvers must be at least 30" above interior floor level. (Otherwise, Rack and Pinion required to bring crank up to convenient height. See Sec. B.) Page 3


Locate Control Near Center Line of Wide Op'gs. (Min. 12" from Jamb)
ARC ARM
WORM GEAR BOX
Jamb Clearance
"B" DIM.
DIM. "L" = Vane Overlap
DIM. "B" = Pivot Spacing
OVERALL OPENING WIDTH = No. OF VANES x "B" DIM. + 2 "L"
JAMB CLOSURE WHEN OPENING WIDER THAN STANDARD

PLAN A (90° OPEN) SCALE: 1½" = 1'-0"

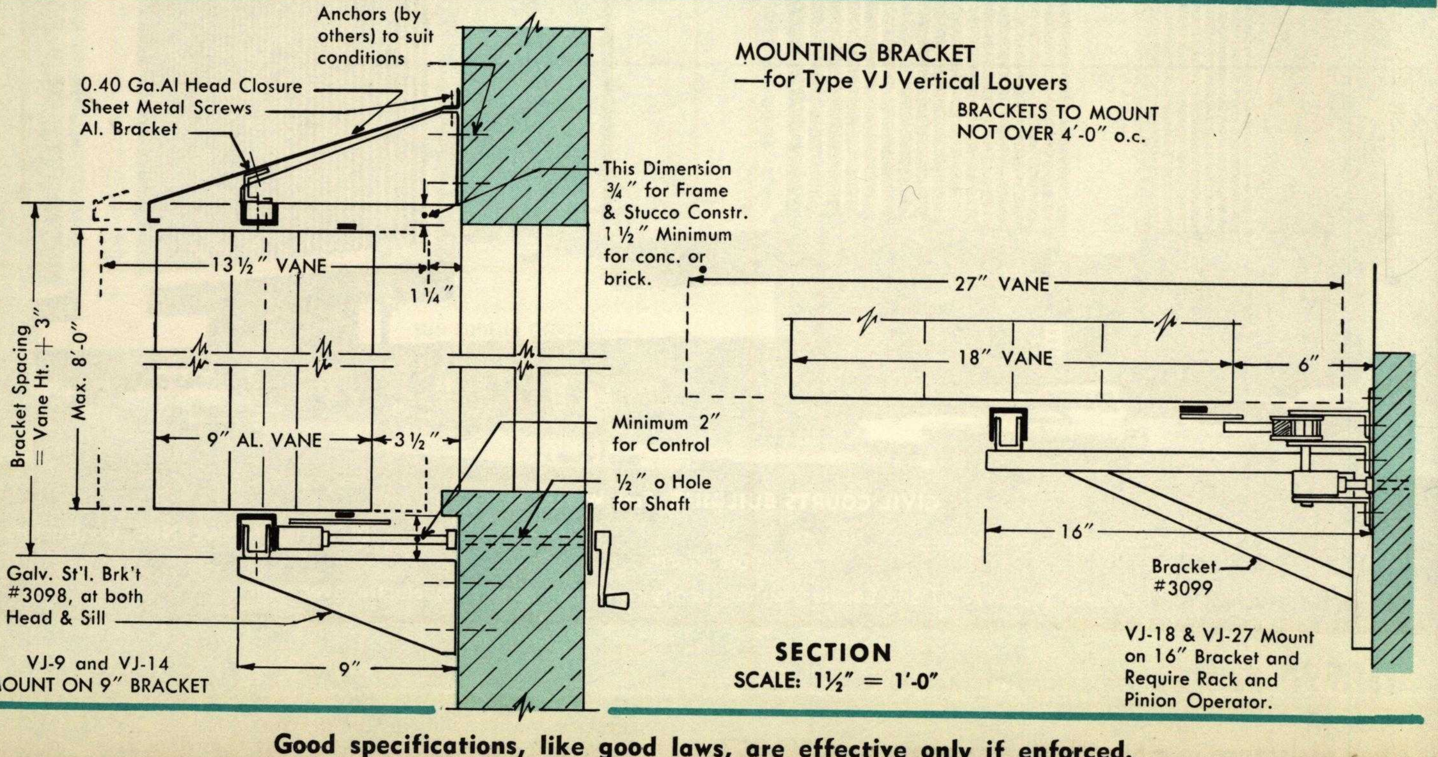
DESIGN REQUIREMENTS VERTICAL LOUVERS WITH LEVER-ARM OPERATOR:

Location of control crank is fixed at 1⅛" below vanes. To locate crank higher, or lower, use rack and pinion operator, page 3.

ALL VERTICAL LOUVERS:

Vanes close to right (as shown) on east and south elevations, opposite on west and north elevations. Framing at head should project to front edge of opened louvers to prevent sun entering at head. In northerly latitudes mount bottom channel on LEMLAR mounting brackets, rather than on a solid ledge, to prevent snow accumulation at base of louvers. Locate operator near middle of run.

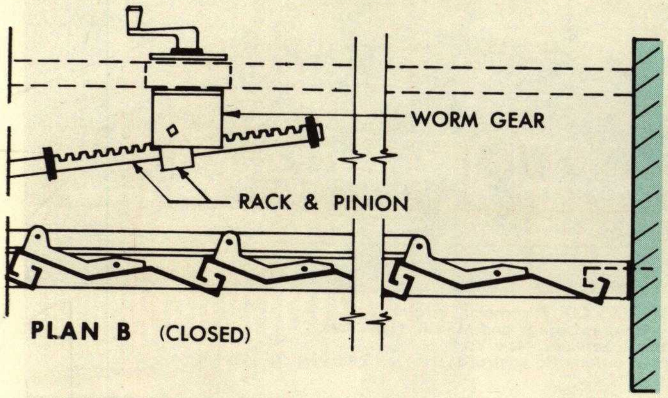
MOUNTING BRACKET
—for Type VJ Vertical Louvers


Anchors (by others) to suit conditions
0.40 Ga. Al Head Closure
Sheet Metal Screws
Al. Bracket
This Dimension 3/4" for Frame & Stucco Constr. 1 1/2" Minimum for conc. or brick.
13 1/2" VANE
1 1/4"
Bracket Spacing = Vane Ht. + 3"
Max. 8'-0"
9" AL. VANE
3 1/2"
Minimum 2" for Control
1/2" ø Hole for Shaft
Galv. St'l. Brk't #3098, at both Head & Sill
9"
VJ-9 and VJ-14 MOUNT ON 9" BRACKET
BRACKETS TO MOUNT NOT OVER 4'-0" o.c.
27" VANE
18" VANE
6"
16"
Bracket #3099
VJ-18 & VJ-27 Mount on 16" Bracket and Require Rack and Pinion Operator.

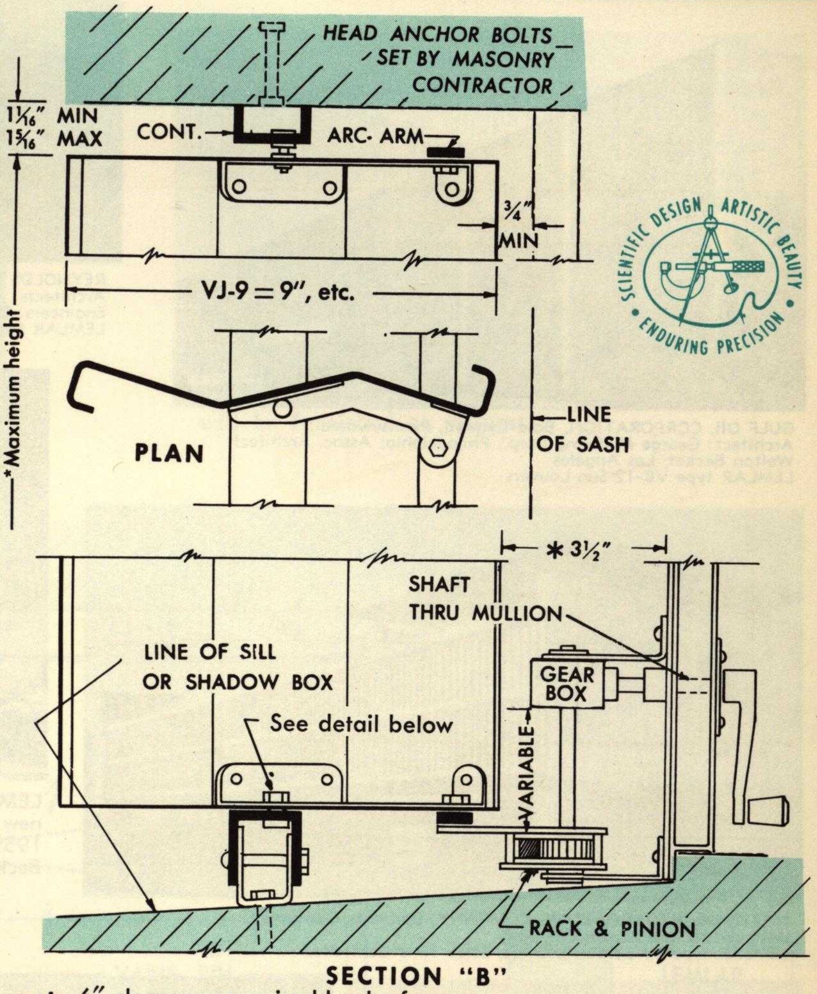
SECTION
SCALE: 1½" = 1'-0"

OPERATOR DETAILS for installations 150 to 500 square feet in area

LEMLAR SUN LOUVERS
VERTICAL, TYPE VJ



PLAN B (CLOSED)



SECTION "B"

* 6" clearance required back of vanes if louver area on one control exceeds 500 sq. ft.

SPECIFICATIONS

(Insert the following paragraphs in the specifications on page 14)

CONSTRUCTION: Vanes shall be die formed to detail of ...... gauge aluminum. *(Insert proper gauge from schedule below)*. Top channel shall be attached directly to head construction. Bottom channel shall be leveled on supporting U brackets attached to sill at maximum spacing of 24". Arc arms shall be of sufficient size to operate vanes without deflection. Arc arm pivots and bottom center pivots shall be shoulder bolts. Top center pivots shall be smooth stud type securely attached to top channel. Operating gears shall be an external oil tight gear assembly with hardened cut steel worm, with oil impregnated bearings and with linkage to arc arm as detailed. Operator shaft shall be squared for engagement into worm gear.

MATERIALS:

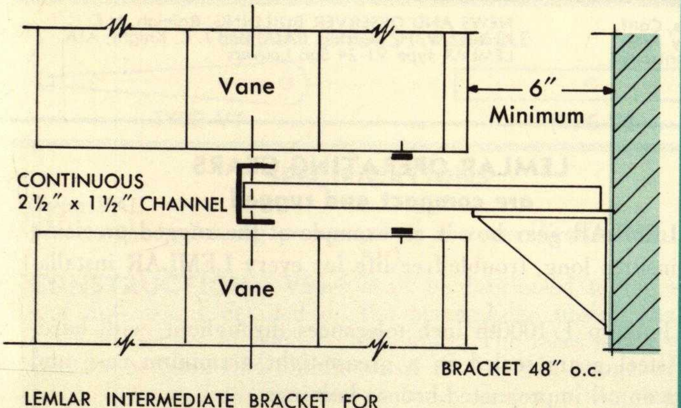
Vanes, 5052-H34 Aluminum.
Channels and Arc Arms, 6063-T5 aluminum.
Pivots, stainless steel, or 7075-T6 aluminum, hard anodized.
Operating shaft, case hardened steel.
Interior trim, satin chrome plated.

OPERATION: Vanes shall be pivoted at both ends, and connected together by arc arms at each end to operate in unison and parallel, without warp and controlled from inside the room as detailed. Vanes shall be operative through an arc of approximately 155°.

SCHEDULE

Vane Width	MINIMUM GAUGES FOR TYPICAL HEIGHTS				Pivot Spacing Dim. "B"	Vane Overlap Dim. "L"	Jamb Clearance Dim.
	8'	10'	14'	20'			
9	.050	*	*	*	8"	1"	5"
14	.050	.050			12"	2"	8"
18	.050	.063	.063		16"	2"	10"
27	.063	.063	.080	.080	24"	3"	15"

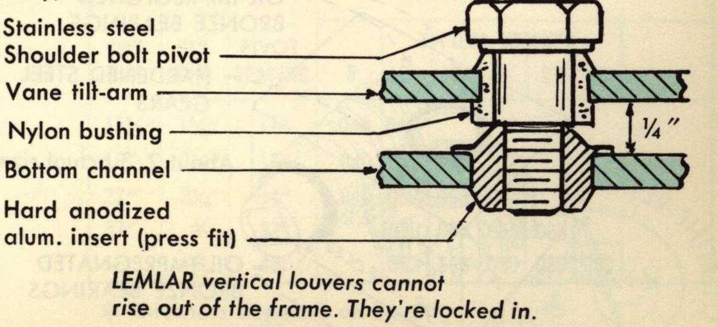
* Vane width inadequate for height shown.



LEMLAR INTERMEDIATE BRACKET FOR STACKED RUNS OF VERTICAL LOUVERS

SECTION SCALE: 1½" = 1'

LEMLAR bottom pivot (Pat. #2,830,335) holds vanes securely, ¼" above sill channel.

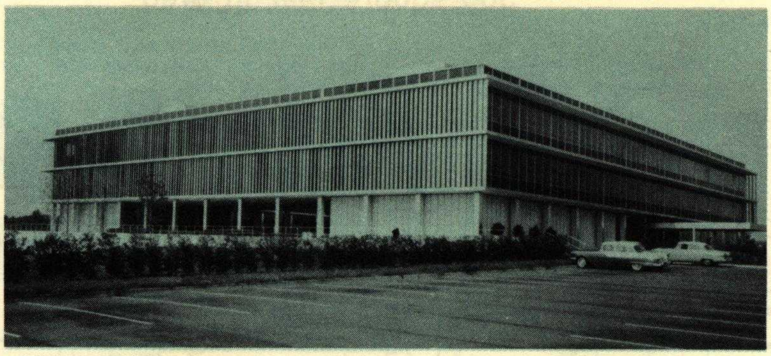

Stainless steel Shoulder bolt pivot
Vane tilt-arm
Nylon bushing
Bottom channel
Hard anodized alum. insert (press fit)
¼"

LEMLAR vertical louvers cannot rise out of the frame. They're locked in.

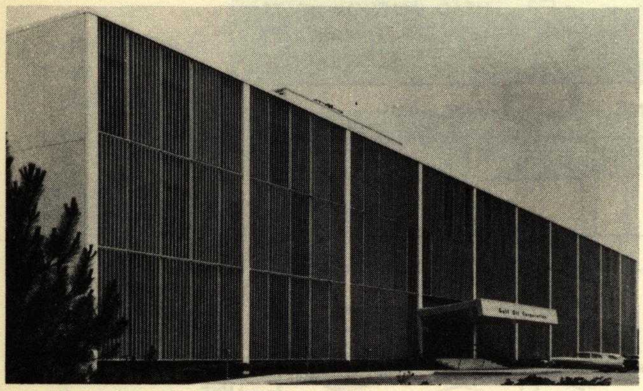
LEMLAR SUN LOUVERS

INSTALLATIONS

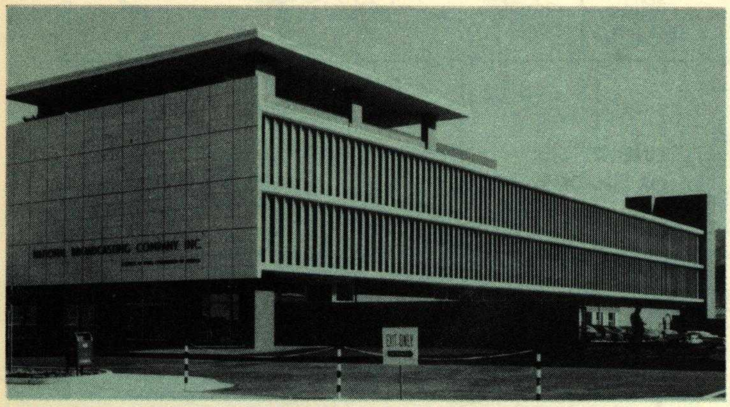
THE STANDARD FOR QUALITY for nearly two decades



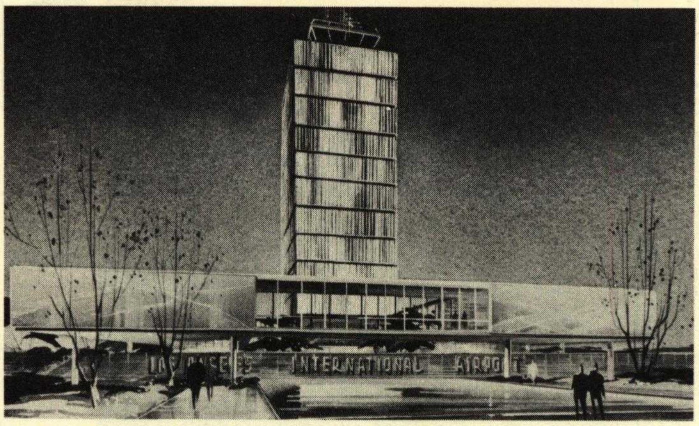
REYNOLDS METALS CO., Richmond, Virginia
Architects: Skidmore, Owings and Merrill, New York
Engineers: Ebasco Services, New York
LEMLAR Special automatic control system on 24" vertical louvers



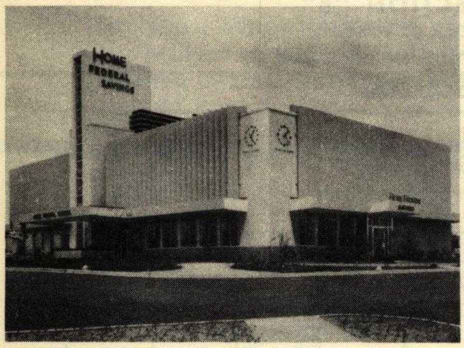
GULF OIL CORPORATION, Bala-Cynwyd, Pennsylvania
Architect: George M. Ewing Corp., Philadelphia; Assoc. Architect: Welton Becket, Los Angeles
LEMLAR type VB-12 Sun Louvers



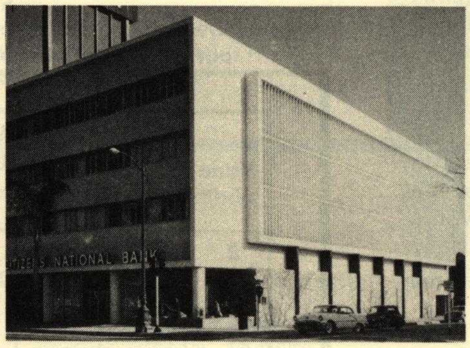
NATIONAL BROADCASTING COMPANY, Burbank, California
Designed by The Austin Company
LEMLAR type VJ-33 Sun Louvers, Solar Time Controlled



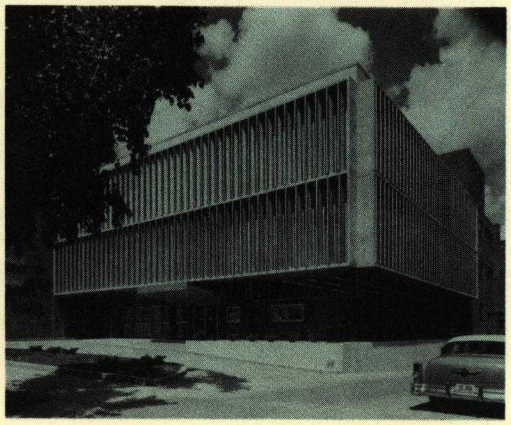
LEMLAR vertical sun louvers will cover the four elevations of the new 11 story L. A. Airport Control Tower to be completed in 1959. Periera & Luckman, Coordinating Architects, Welton Becket & Associates, Paul R. Williams.



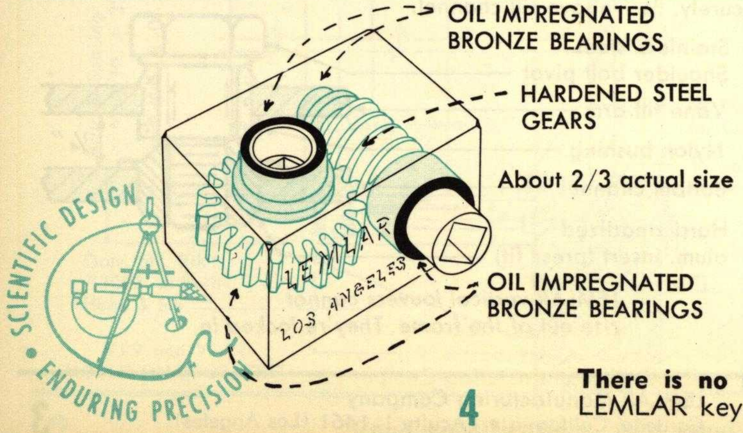
HOME FEDERAL SAVINGS & LOAN,
Tulsa, Oklahoma
Architect: Koberling and Brandborg,
Tulsa, Oklahoma
LEMLAR type VA-24 Sun Louvers,
Solar-Time Controlled



CITIZENS NAT. BANK, Beverly Hills, Calif.
Architect: Sidney Eisenshtat, Beverly Hills
LEMLAR type VJ-18, Solar-Time Controlled



NEWS AND OBSERVER BUILDING, Raleigh, N.C.
Archts: W. H. Deitrick, FAIA, and J. C. Knight, AIA
LEMLAR type VJ-24 Sun Louvers



LEMLAR OPERATING GEARS

are compact and rugged

The LEMLAR gear box is an example of the rugged precision that insures long, trouble-free life for every LEMLAR installation.

It is built to 1/1000th inch tolerances throughout, with hardened steel gears sealed in a grease-tight aluminum case and riding on oil impregnated bronze bearings.

Shop-tested, under load, the gears showed insignificant wear after the equivalent of 100 years of normal operation.

There is no substitute for experience. The cumulative experience of LEMLAR key personnel totals over 100 years in sun control.

LEMLAR SUN LOUVERS

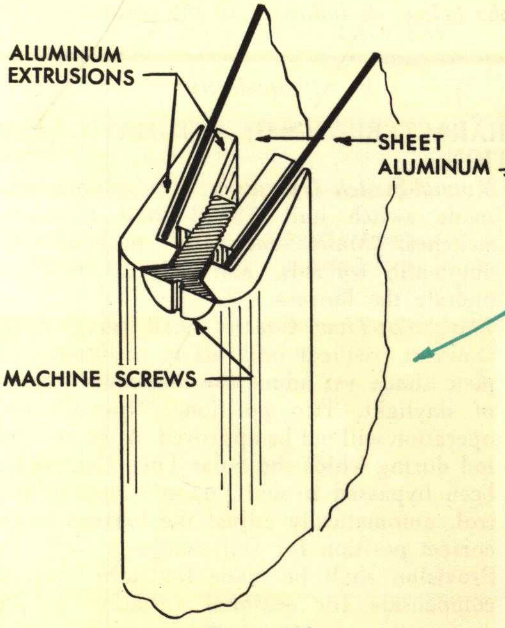
TYPES VA, VT, VB

DESIGNS and SIZES FOR MONUMENTAL EFFECTS

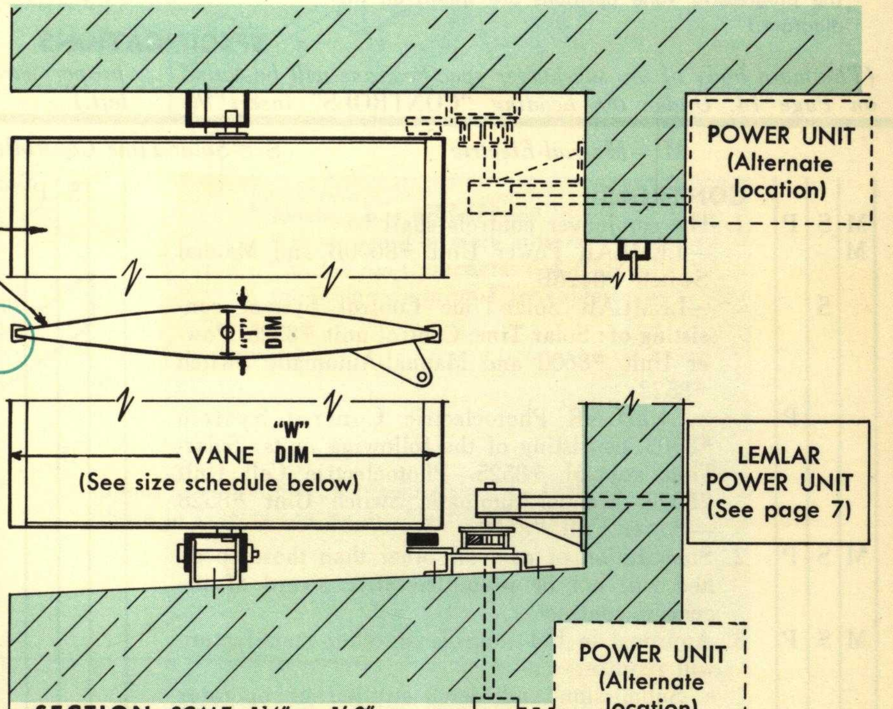
SUNSET INTERNATIONAL BUILDING, Beverly Hills, Calif
Architect: John C. Lindsay, Los Angeles
LEMLAR type VA-50 Sun Louvers with Solar-Time Control

Monumental louver widths and heights are almost unlimited. Vanes of considerable height may be made in sections, and provided with intermediate supports, while maintaining the appearance of continuous vanes. *(See front cover—Civil Courts Building).*

The LEMLAR vane nosing, a patented feature, grips the aluminum sheets securely with a strong clamping action on the VA and VT types. The nosing strengthens the vane edges, both physically and in appearance. Design details and specifications for these types to suit your particular project will be furnished on request.



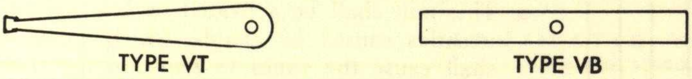
Type VA
CLAMPING METHOD
LEMLAR Pat. No. 2,759,574


POWER UNIT (Alternate location)
"T" DIM
"W" DIM
VANE
(See size schedule below)
LEMLAR POWER UNIT (See page 7)
POWER UNIT (Alternate location)

SECTION SCALE: 1½" = 1'-0"

TYPE VA LOUVERS

SPECIAL SHAPES AVAILABLE



SPECIFICATIONS

(Type VA)
(Insert the following paragraph in the specifications on page 14.)

CONSTRUCTION: Vanes shall be fabricated to the shape and dimensions detailed on the plans. Edge nosing shall be extruded shapes of 6063-T5 aluminum. The faces of the vanes shall be of 5052-H34 aluminum of .... gauge. (*Insert proper gauge from schedule below.*) Center pivots and arc arm pivots at top and bottom shall attach to a cast aluminum end inserts shaped to the contour of the vane section.

SCHEDULE

VA STANDARDS

			MINIMUM GAUGES					
			TYPICAL HEIGHTS					
"W" DIM	"T" DIM	PIVOT SPACING	8′	12′	16′	24′	27′	36′
13½″	1⅝″	12″	.040	.040				
18″	2⅛″	16″	.040	.050	.050			
27″	3³⁄₁₆″	24″	.040	.050	.050	.063		
37″	*	32″		.050	.063	.063	.063	
56″	*	48″		.063	.063	.080	.080	.080

***** Thickness depends on height

SOLAR CONTROL

LEMLAR
SUN LOUVERS
AUTOMATIC CONTROLS

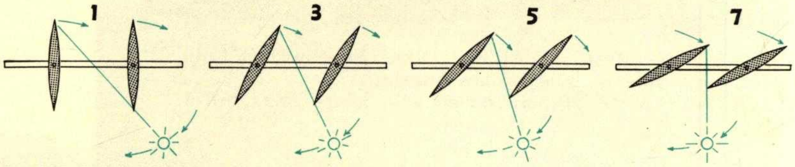
TAKE THE GUESSWORK OUT OF LOUVER OPERATION. LEMLAR automatic controls give precise operation and lasting satisfaction.

AUTOMATIC CONTROLS: When a sun louver installation covers the windows of several rooms and affects the working conditions of many employees, automatic controls should be used. LEMLAR automatic controls assure optimum light conditions and uniform exterior appearance at all times. They add only a small percentage to the cost of the LEMLAR sun louver installations and add greatly to their convenience and efficiency.

The LEMLAR Solar-Time Control moves the vanes at frequent intervals during hours of sun exposure. *(See sketch below).* By maintaining a minimum shade overlap on the vanes, the louvers are always positioned to admit maximum reflected sunlight and diffuse daylight. The louver movements are not distracting to personnel, nor does LEMLAR sun control darken the interior. Only one LEMLAR Solar-Time Control is required for an elevation, even though several power units may be required. Each individual LEMLAR Solar-Time Unit is pre-set to accurately predicted sun angles for the latitude, longitude, and orientation of the particular building.

The LEMLAR Photoelectric-Control System is automatically light-compensating. When clouds cause light intensity to drop, the louvers open wide to admit more light, and remain stationary until the sky clears. The Solar-Time Control then automatically adjusts the louvers to the proper shade position, regardless of the time.

LEMLAR-controlled sun louvers automatically move just ahead of the sun. No direct sun reaches the windows, yet occupants enjoy maximum view,— and ideal visual conditions created by diffused light from sky and louvers. (Only four of the progressive vane positions are shown on the diagram.)



SPECIFICATIONS

(The main body of the sun-louver specifications will be found on Page 14. Under the heading "CONTROLS" *insert the proper paragraphs below, as indicated in the columns at the left.)*

M = *Manual-Electric* S = *Solar-Time Controlled* P = *Photoelectric*

CONTROLS

M S P 1. The sun-louver controls shall be

M —LEMLAR Power Unit #8600B and Manual Switch #8426B

S —LEMLAR Solar-Time Control System consisting of: Solar Time Control unit #8525, Power Unit #8600 and Manual-Automatic Switch #8528

P —LEMLAR Photoelectric Control System #8503, consisting of the following units: Solar-Time control #8525—Photoelectric Cell Unit #8527, Manual-Automatic Switch Unit #8528 —Power Unit #8600.

M S P 2. Substitution of controls other than those specified will not be permitted after award of the general contract.

M S P 3. Approval to bid controls of other manufacture will require:

- a. Submission and demonstration of operator and controls to the architect, not later than seven days before bidding. The system shall be composed of full sized actual units of proposed substitute, and shall operate sample louvers thru complete operating cycles specified herein.
- b. Submission of a list of three completed installations in operation at least one year, and controlled in accordance with these specifications, with name of architect, owner, and location of job.

M S P 4. POWER UNITS:

- a. Power Unit shall operate on 115 V 60 cycle current. Limit switches shall be provided in the unit to cut off the current when the louvers have reached their limit of operation. The Power Unit shall be protected by a completely enclosing metal cover, easily removable for servicing of the unit.
- b. Safety Provisions:
  Each motor shall have a reset type overload cut-out located next to the Control Panel.

S P 5. CHARACTERISTICS OF AUTOMATIC OPERATION:

- a. *Manual-Switch Operation:* The manual-automatic switch unit #8528 shall have two switches, "Manual-automatic" to bypass the automatic controls, and "Open-Closed" to operate the louvers.
- b. *The Solar-Time Control* shall position the vanes at frequent intervals to maintain complete shade yet admit the maximum amount of daylight. Two position, "Open-Closed", operation will not be approved. After any period during which the Solar-Time Control has been bypassed it shall, upon resuming control, automatically adjust the louvers to the correct position for full shading.
- c. Provision shall be made for adjustment to compensate for seasonal variation in sun angles.
- d. The Solar-Time Control Unit shall be located as indicated on the drawings. It shall be mounted in a metal cabinet with hinged door and cylinder lock.

P 6. PHOTOELECTRIC CELL UNIT:

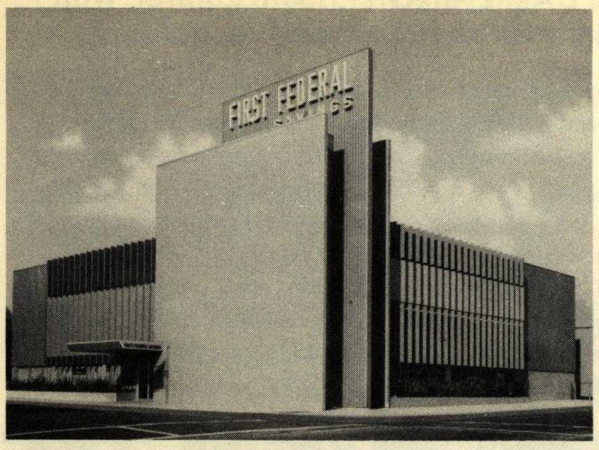
- a. This unit shall be activated by low light intensities caused by clouds, which condition shall cause the vanes to move to the wide-open position. High intensity of light shall cause control of the louvers to revert to the Solar-Time Unit.
- b. The photo-cell unit shall have internal and external adjustments for light intensity. It shall be mounted on the roof facing the same direction as the louvers it controls.

M S P 7. All units shall have internal wiring complete and ready for field connections, and bear certificate of approval of Underwriter's Laboratories or other recognized testing authority.

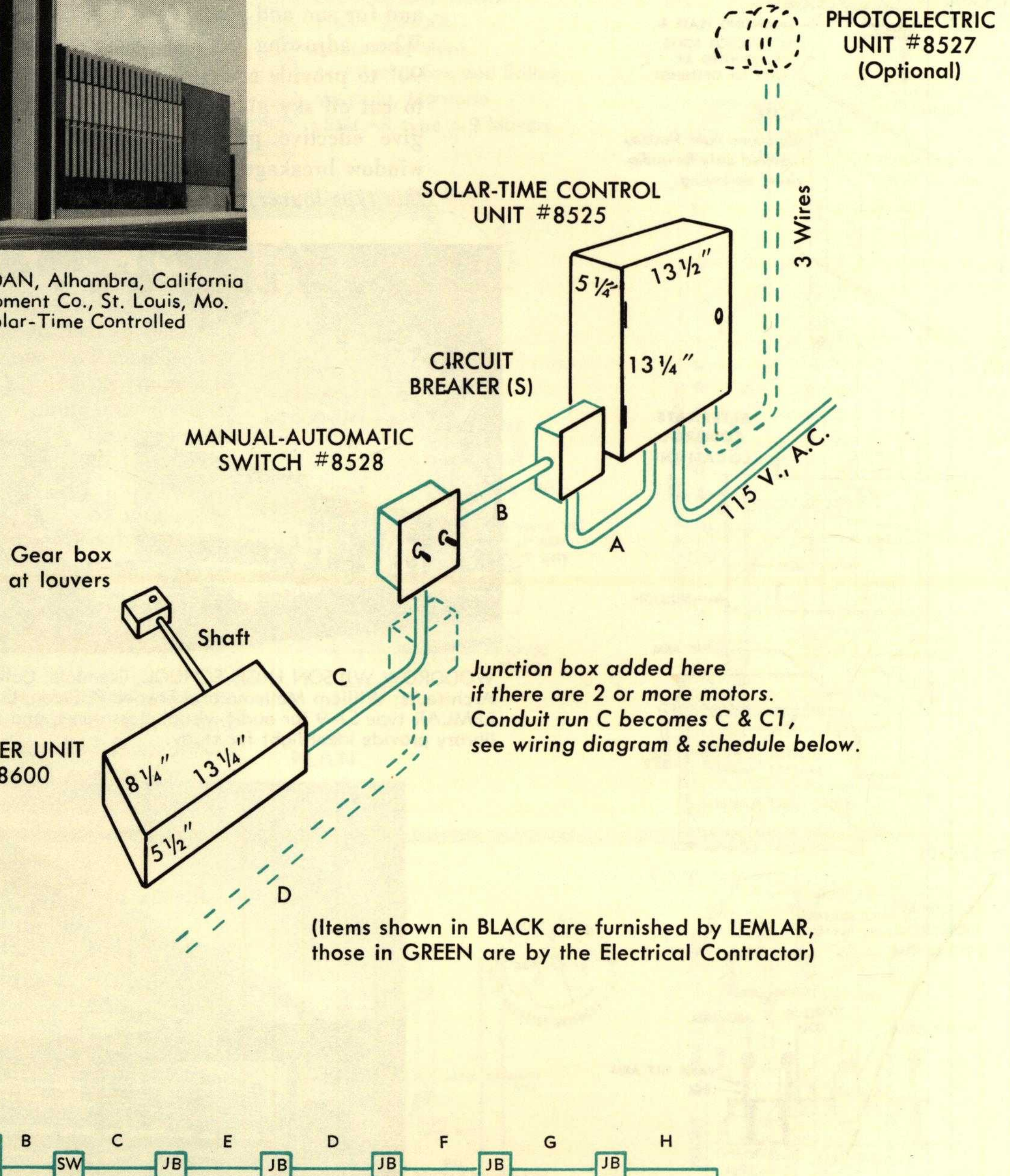
M S P 8. All field wiring and connections shall be done by the electrical contractor, including the outlet boxes for switches and overload circuit breakers.

There's many an unhappy sequel to the loose use of "or equal"

CONTROLS—WIRING

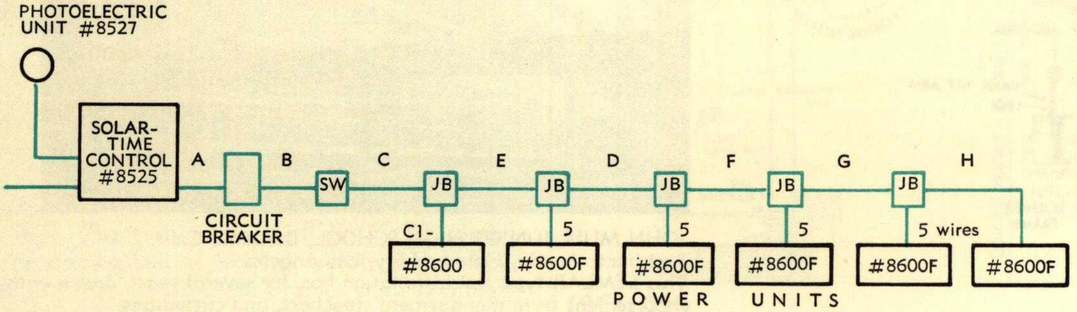


FIRST FEDERAL SAVINGS & LOAN, Alhambra, California
Designer: Bank Building & Equipment Co., St. Louis, Mo.
LEMLAR type VB-28 louvers, Solar-Time Controlled



Junction box added here if there are 2 or more motors. Conduit run C becomes C & C1, see wiring diagram & schedule below.

(Items shown in BLACK are furnished by LEMLAR, those in GREEN are by the Electrical Contractor)



SCHEMATIC WIRING DIAGRAM

(See wire schedule and notes below)

WIRE SCHEDULE

No. Motors	NO. OF WIRES IN CONDUITS								
	A	B	C	C1	D	E	F	G	H
1	5	5	5	—	—	—	—	—	—
2	5	6	7	7	5	—	—	—	—
3	5	7	8	7	6	5	—	—	—
4	5	8	9	7	7	6	5	—	—
5	5	9	10	7	8	7	6	5	—
6	5	10	11	7	9	8	7	6	5

On the multiple-motor control system, power Unit #8600 is the Master Unit that synchronizes the operation of the follower units (#8600 F). Thus, all the louver runs move at the same instant and assume the same angle of adjustment, over the entire elevation.

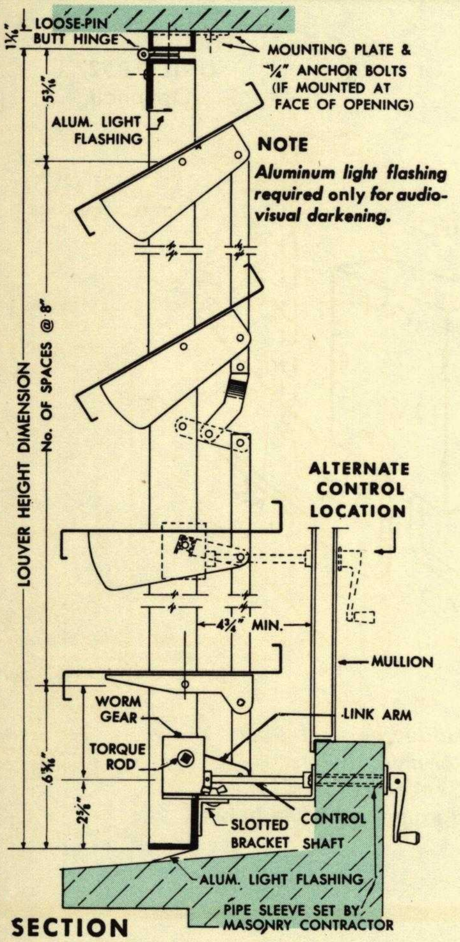
NOTE:

The physical layout of a building frequently necessitates, or makes more practical, the positioning of the Master Power Unit and master switch between two of the follower units. *Another requirement may be the individual switch operation of individual runs.* IN SUCH CASES THE WIRE SCHEDULE AT LEFT DOES NOT APPLY. *Correct wiring diagram for your project will be furnished promptly on request.*

LEMLAR SUN LOUVERS

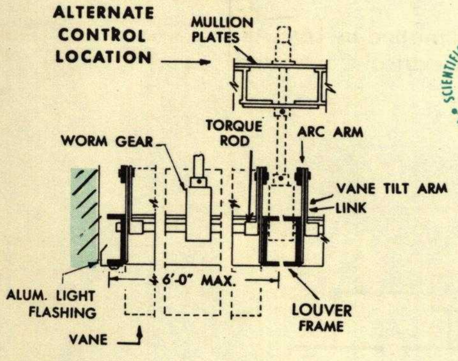
SOLAR CONTROL

HORIZONTAL, TYPE SJ9



NOTE
Aluminum light flashing required only for audio-visual darkening.

SECTION



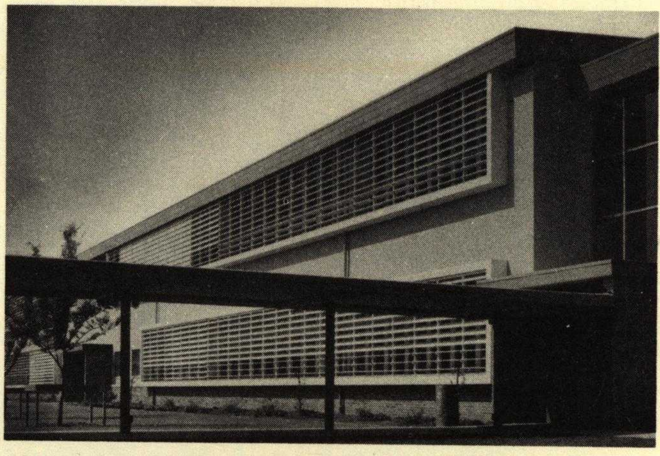
PLAN SCALE: 1½" = 1'

AUDIO-VISUAL DARKENING + Sun Control with a vision-strip + protection from vandalism.

The S-J9 type was designed specifically for schools that use audio-visual education. They serve the dual purpose of darkening the rooms to 1 foot-candle or less for picture projection, and for sun and glare protection during normal classroom use. When adjusting to the open position, the lower vanes move 90° to provide a vision strip. The upper vanes open only 60° to cut off sky glare and direct sun. When closed, the louvers give effective protection against vandalism and accidental window breakage *(Request Data Unit #045, a case history on this type louver)*.

WOODROW WILSON HIGH SCHOOL, Glendale, California
Architects: William Mellema and Erwood P. Eiden, Los Angeles
LEMLAR type SJ-9 for audio-visual classrooms, and type VJ-24 on the library provide ideal light for study.

SCIENTIFIC DESIGN · ARTISTIC BEAUTY · ENDURING PRECISION



JOHN MUIR JUNIOR HIGH SCHOOL, Burbank, Calif.
Architect: Austin, Field and Fry, Los Angeles
This LEMLAR type J-9 installation has, for several years, drawn enthusiastic endorsement from management, teachers, and custodians.

SPECIFICATIONS

(Insert the following paragraphs in the specifications on page 14.)

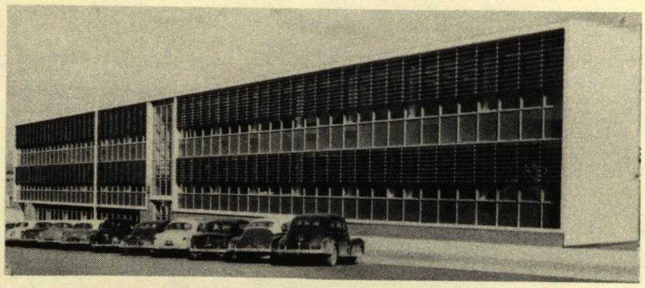
CONSTRUCTION: Frame members shall be extruded aluminum sections not less than ⅛" thick. Vanes shall be die formed to detail of .050 gauge, 5052-H34 aluminum. Pivots shall be ¼" aluminum shoulder rivets, bushed with flanged oilite bearings, and riveted firmly in place. Arc arms shall be aluminum flat bar of not less than ⅛" x ¾". The torque rod shall be of galvanized steel or 75 ST aluminum, bronze bushed at bearing points and linked to both arc arms as detailed. Frames shall be hinged mounted at head, and secured to sill brackets with wing nuts. Differential linkage as detailed, shall connect the upper and lower sections of the arc arms for proper operation. (Note: This feature is patented by LEMLAR Manufacturing Company, Patent No. 2,574,455). A stop shall be provided to prevent opening of lower vanes beyond a horizontal position. Operating gears shall be an oil tight gear assembly with hardened cut steel worm and pinion, and oil impregnated bearings.

OPERATION: Movable vanes shall be pivoted at both ends, and connected together by arc arms at each end to operate in unison and parallel, without warp and controlled from inside the room as detailed. Upper group of vanes shall open 60° and lower group 90° from closed position, on the same control.

If you want it, specify it; and having specified it, be sure you get it,—LEMLAR QUALITY.

TYPES J-9, J-5, and SA-5

ADJUSTABLE HORIZONTAL LOUVERS for balanced light distribution



ANACONDA SENIOR HIGH SCHOOL,
Anaconda, Mont.
Architects: Fox and Ballas,
Missoula, Montana
LEMLAR type J-9 louvers

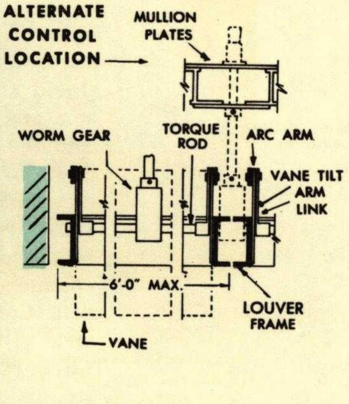
SCIENTIFIC DESIGN • ARTISTIC BEAUTY • ENDURING PRECISION

SPECIFICATIONS (J-9)

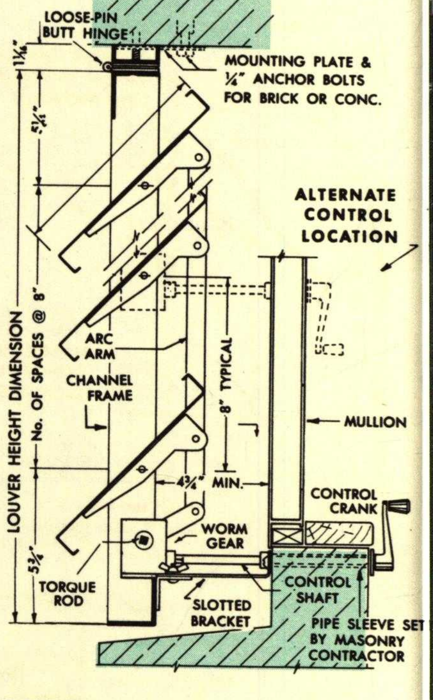
(Insert the following paragraphs in the specifications on page 14.)

CONSTRUCTION: Frame members shall be extruded aluminum sections as detailed, not less than 1/8" thick. Vanes shall be die formed to detail of .050 gauge, 5052-H34 aluminum, and shall be riveted to die formed tilt arms pivoted on frame and arc arms. Pivots shall be 1/4" aluminum shoulder rivets, bushed with flanged oilite bearings, and riveted firmly in place. Arc arms shall be aluminum flat bar of not less than 1/8" x 3/4". The torque rod shall be of galvanized steel or 75 ST aluminum, bronze bushed at bearing points and linked to both arc arms as detailed. Operating gears shall be an oil tight gear assembly with hardened cut steel worm and pinion, and oil impregnated bearings. Frames shall be hinge mounted at head, and secured to sill brackets with wing nuts.

OPERATION: Vanes shall be connected together by arc arms at each end, to operate in unison and parallel without warp, and controlled from inside the room as detailed. Vanes shall operate thru an arc of 125° from the closed position.



PLAN



SECTION

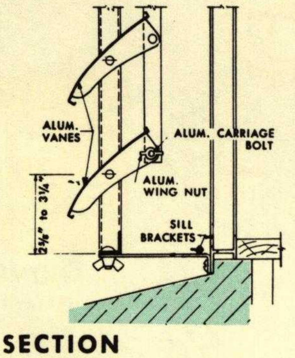
SCALE: 1 1/2" = 1'-0"

SPECIFICATIONS (J-5)

(Insert the following paragraphs in the specifications on page 14.)

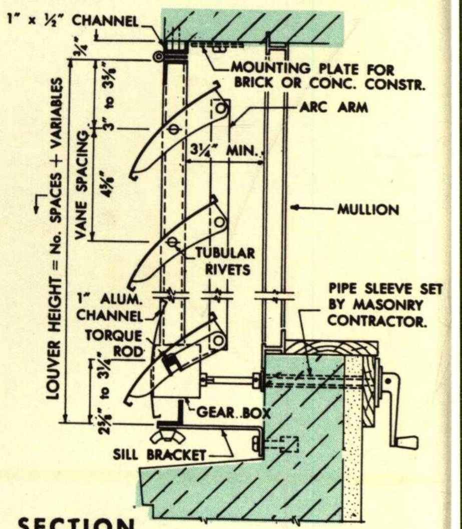
CONSTRUCTION: Frame members shall be extruded aluminum sections as detailed, not less than 1/8" thick. Vanes shall be rolled formed of .030 gauge, 5052-H34 aluminum, 5" wide, with 8" radius crown and edges rolled to form a reinforcing channel. Vane ends shall be die cut and formed for pivot mountings. Vanes shall pivot on 3/16" tublar cadium plated brass rivets set with clearance to permit free rotation without undue looseness. Arc arms shall be aluminum flat bar not less than 1/8" x 3/4". The torque rod shall be 75 ST aluminum bronze bushed at bearing points and linked to both arc arms as detailed. Frames shall be hinge mounted at head, and secured to sill brackets with wing nuts.

OPERATION: *(Use "OPERATION" paragraph for J-9 type at top of page)*



SECTION

SA-5 SEMI-ADJUSTABLE



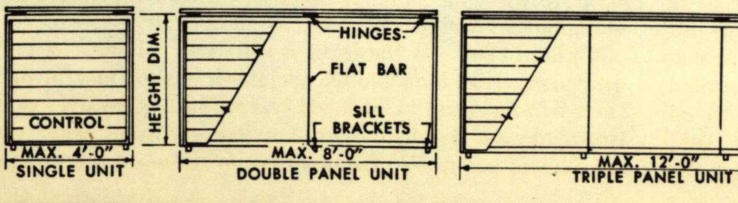
SECTION

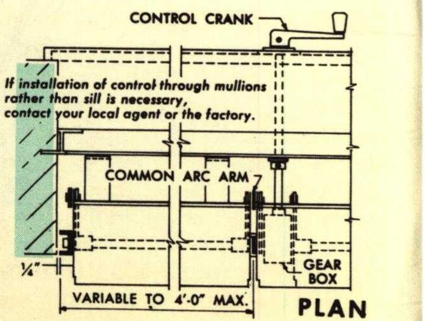
SCALE: 1 1/2" = 1'

SPECIFICATIONS (SA-5)

CONSTRUCTION: *(Same as for J-5, above.)*

OPERATION: Bottom arc arm pivots shall be aluminum bolts and wing nuts to permit changing the vane agle.





If installation of control through mullions rather than sill is necessary, contact your local agent or the factory.

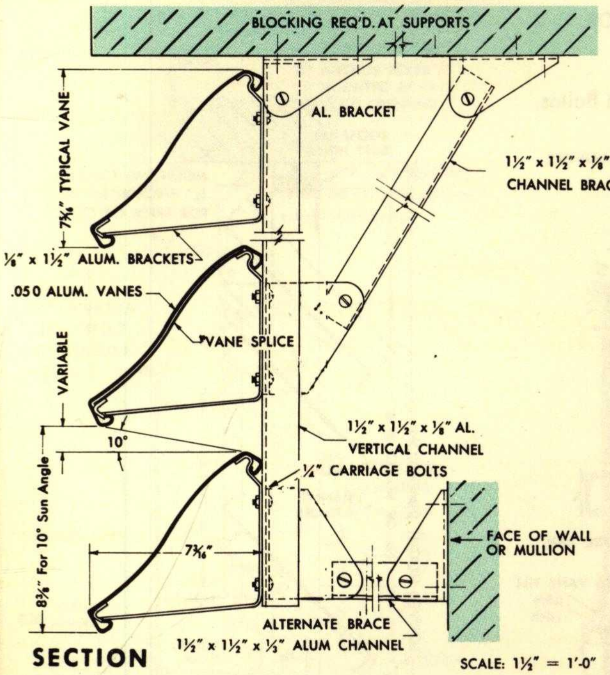
PLAN

SOLAR CONTROL

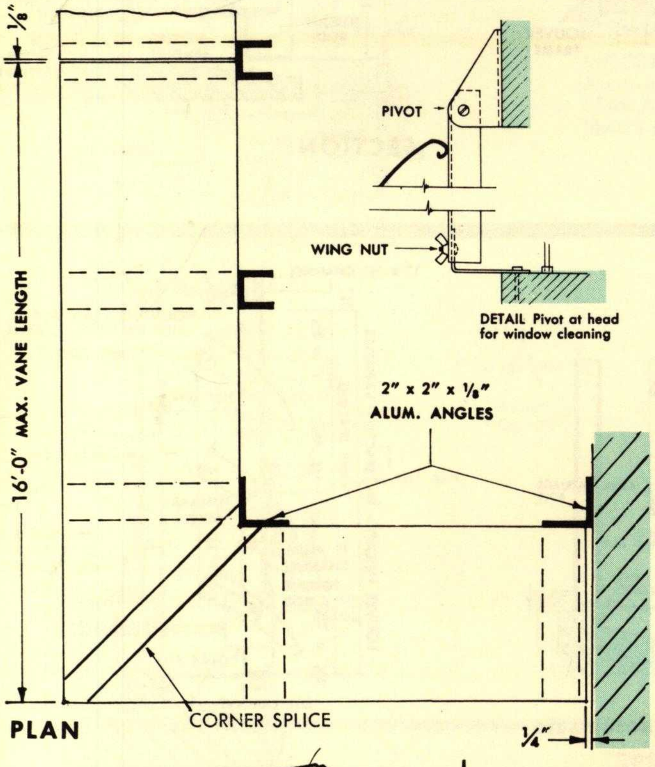
LEMLAR SUN LOUVERS

TYPE SF-10

STATIONARY LOUVERS FOR SHADE AND ARCHITECTURAL EFFECT

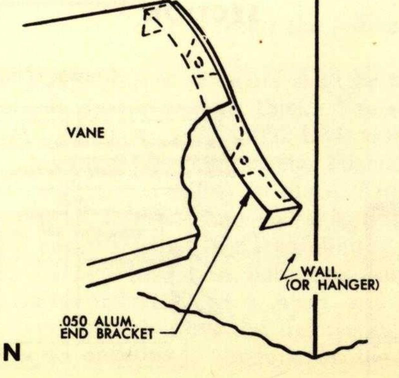


SECTION



DETAIL Pivot at head for window cleaning

PLAN



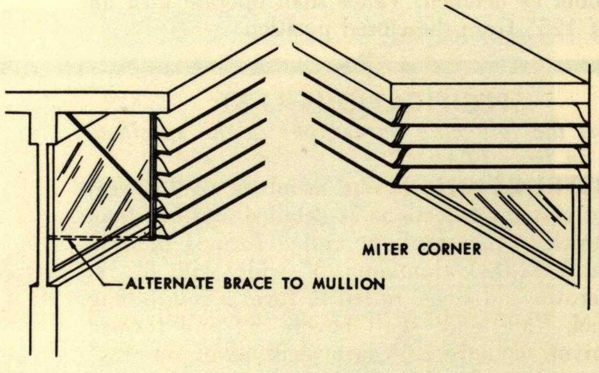
ALT. END CONDITION

NATIONAL BROADCASTING CO., Burbank, Calif.
Designed by The Austin Company
LEMLAR type SF-10 stationary louvers

Type SF-10 stationary louvers, often used on school buildings are usually installed under the edge of roof overhangs to shield small, high level windows from direct sky glare and sun, and at the same time transmit reflected and diffused light into the rooms. They are also used to shield clerestory windows. When mounted close to windows, panels are pivoted at the head to swing out for window cleaning.

DESIGN CONSIDERATION: Vane spacing can vary as determined by the desired sun cut off angle. Vertical supporting channels should be spaced not over 6′ 0″ to eliminate vane deflection and vibration in high winds, but vanes have sufficient stiffness to be self supporting on 8′ centers.

(Request Data Unit #034, "Glare Studies of SF-10 louvers).



SPECIFICATIONS

CONSTRUCTION: Vanes shall be roll formed of 3003-H14 aluminum .050 gauge and shall be attached to frame by die formed aluminum brackets so formed as to grip the vane without use of bolts or screws. End clips, #5195, die formed to shape of vane, of .050 gauge, aluminum, shall grip vane without use of bolts or screws. Framework shall consist of 1½″ x 1½″ x ⅛″ extruded aluminum channels not more than 6′ 0″ on centers and attached to building construction as detailed. Vanes shall be in lengths (not exceeding 18′) to suit building construction. Abutting vanes shall be accurately aligned with a joint not exceeding ⅛″ between them. This gap shall be closed by a splice on the underside, formed of same material and shape as the vane. Anchor bolts or screws shall be of galvanized or cadmium plated steel. All assembly bolts shall be of 17 ST aluminum alloy. (If the louvers are located close to windows requiring access for cleaning, add the following): Louver frames shall be pivoted at head, and secured with wing nuts at bottom, to release and swing out for window cleaning.

Write for 3″ scale LEMLAR detail sheets, loose-leaf for tracing.

TYPES VSF-10 and CX-9

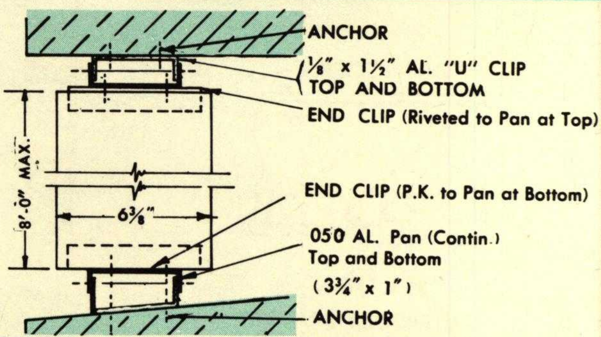
STATIONARY VERTICAL LOUVERS.
EXTRUDED HORIZONTAL LOUVERS.

VSF-10

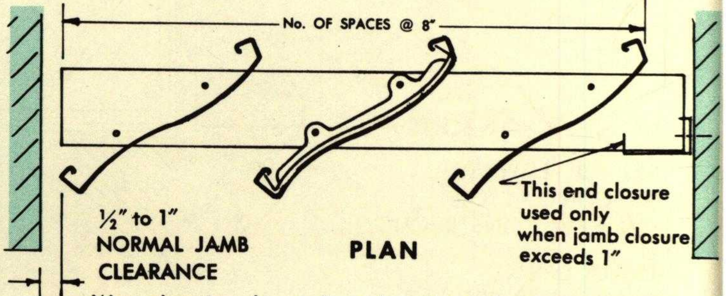
The SF-10 type vanes used vertically (VSF-10) provide an efficient installation when louvers are to be stationary; but may prove objectionable to building occupants due to restricted view. Fixed verticals can be spaced to provide full shade on elevations facing directly east or west. (Standard spacing is 8″ for 90° sun cut off angle) *South elevations require adjustable louvers for full shading all day.* VSF-10 louvers over 8′ 0″ high require intermediate bracket supports similar to SF-10 mounting.

SPECIFICATIONS (VSF-10)

CONSTRUCTION: Vanes shall be formed of 3004-H14 aluminum, .050 gauge. Vanes shall be attached to frame at 8″ o.c. by end clips #5195, die formed to conform to the shape of vane, of .050 gauge, aluminum. Clips shall grip vanes without use of bolts or screws, and shall be attached to head and sill channels as detailed. Channels shall be mounted on aluminum U-clips attached to head and sill as detailed. Anchor bolts or screws for attaching to building construction shall be of galvanized or cadmium splated steel. All other fastening bolts shall be of 17 ST aluminum alloy.



SECTION SCALE: 1½″ = 1′-0″ **VERTICAL SF-10**
LEMLAR TYPE VSF-10



West elevation shown. East elevation vanes turned opposite.

SCIENTIFIC DESIGN · ARTISTIC BEAUTY · ENDURING PRECISION

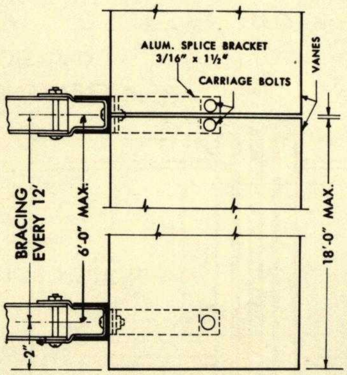
CX-9

Type CX-9 louvers serve the same purpose as the SF-10 but are more efficient in the amount of light reflected inward. Due to their shape and dimensions, these vanes are spaced more closely together to give the same degree of protection against direct sunlight. The vertical supporting channels must be spaced not over 6′ 0″ on centers.

Stationary louvers of any type are successfully used architecturaily and for limited shading, but are not as economical as adjustable louvers when true sun control is sought.

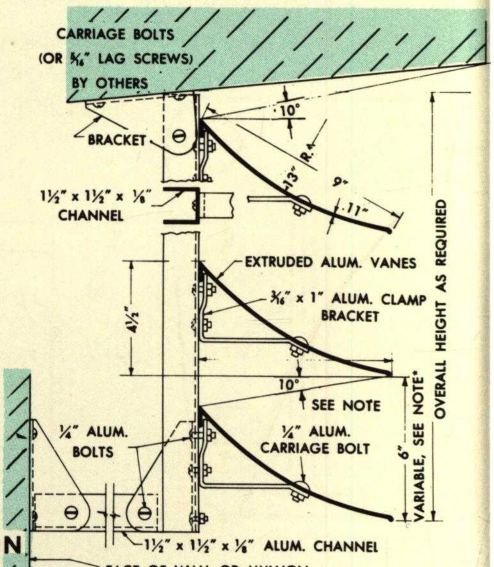
SPECIFICATIONS (CX-9)

CONSTRUCTION: Vanes shall be extruded from 6063-T5 aluminum to a radius of 13″ and a thickness of .11″. Vanes shall be attached to frame by die formed aluminum brackets in accordance with manufacturers details. Framework shall consist of 1½″ x 1½″ x ⅛″ extruded aluminum channels spaced not over 6′ on centers, and attached to building construction as detailed. Vanes shall be in lengths (not exceeding 18′) to suit building construction. Abutting vanes shall be accurately aligned with an expansion joint not exceeding ⅛″ between them. Anchor bolts or screws shall be of galvanized or cadmium plated steel. All assembly bolts shall be of 17 ST aluminum alloy.



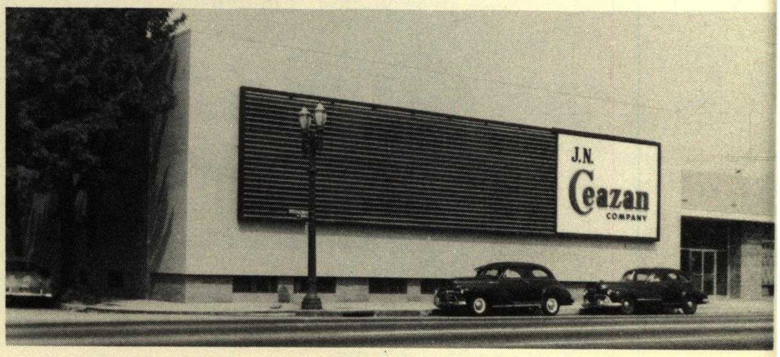
PLAN

SCALE: 1½″ = 1′-0″



SECTION

NOTE: The std. 6″ spacing between vanes shown, keeps out direct sun rays above 10° elevation; 6¾″ spacing gives 15° cut-off.*



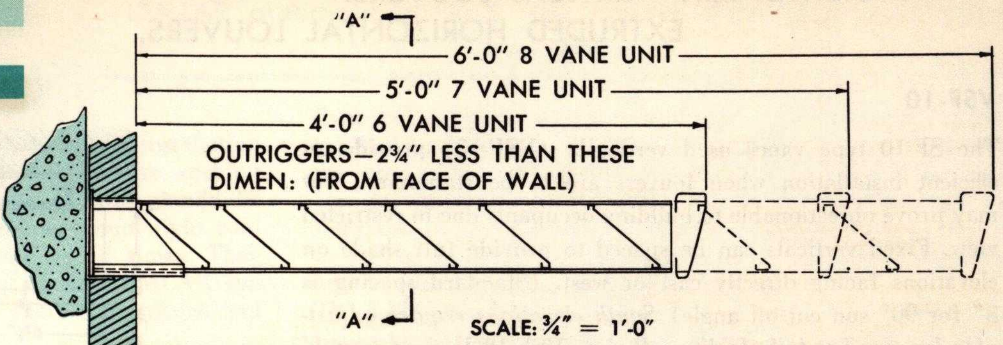
J. N. CEAZAN BUILDING, Los Angeles
Architect: Arthur Froehlich, Beverly Hills
LEMLAR type CX-9 louvers

ABILITY, INTEGRITY, EXPERIENCE, these have built a reputation that is your guarantee.

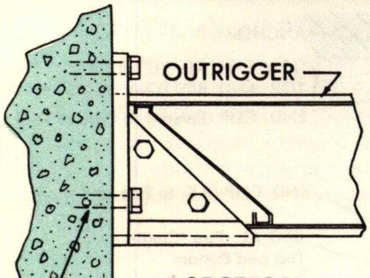
LEMLAR SUN LOUVERS

SOLAR CANOPY, TYPE SC

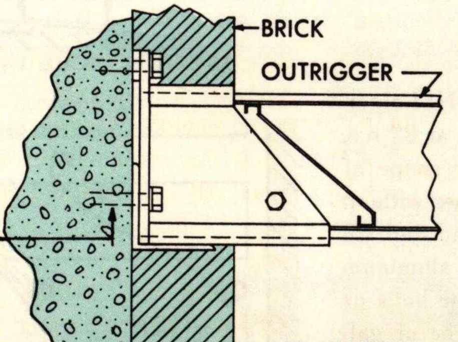
FOR PARTIAL SHADE and ARCHITECTURAL EFFECT



SECTION



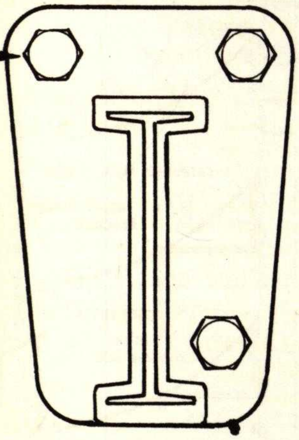
SECTION
OUTRIGGER BRACKET
EXTERIOR MOUNTED



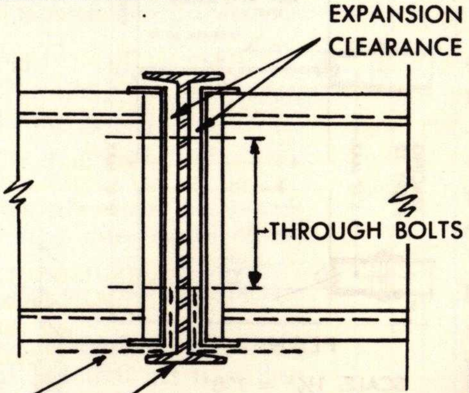
SECTION
OUTRIGGER BRACKET
INSET MOUNTED
SCALE: 1½" = 1'-0"

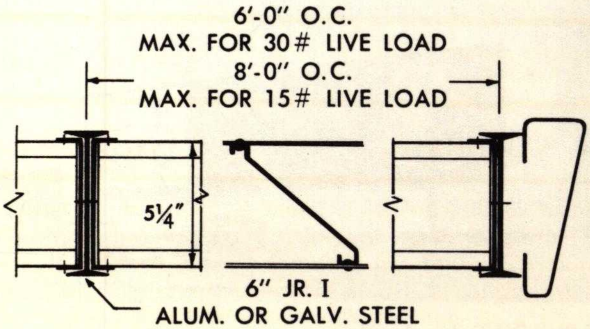
½" φ ANCHOR BOLTS
SET TO TEMPLATE
(BY CONTRACTOR
ON NEW CONSTRUCTION).
HOLES DRILLED
& ANCHORS SET FOR
EXISTING CONSTRUCTION

VANE GAUGES
.050 FOR 30# LOAD
.040 FOR 15# LOAD



OUTRIGGER BRACKET
SCALE: 3" = 1'-0"


EXPANSION CLEARANCE
THROUGH BOLTS
6" STEEL GALVANIZED STEEL OR ALUMINUM JR. I BEAM, BY OTHERS
.050 CLOSURE (when required to cover variations in beam spacing)

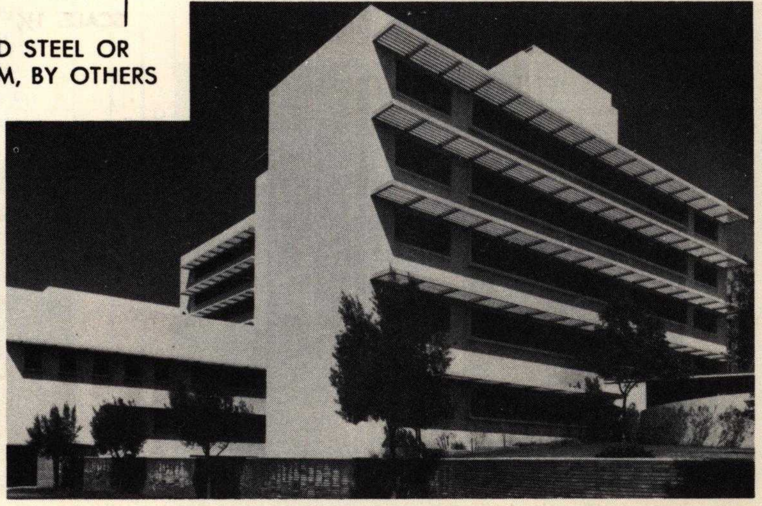


SECTION "A-A"

LEMLAR Solar Canopies are often used to add interest and eye-appeal to otherwise flat and ordinary facades. The vanes are progressively spaced to shade windows up to 5 feet high, but assure protection from direct sun and skyglare *only* during midday. For this reason they should be utilized only where louvers are not feasible. Solar Canopies are *not* designed to be employed as store marquees, or to provide rain protection.

SPECIFICATIONS

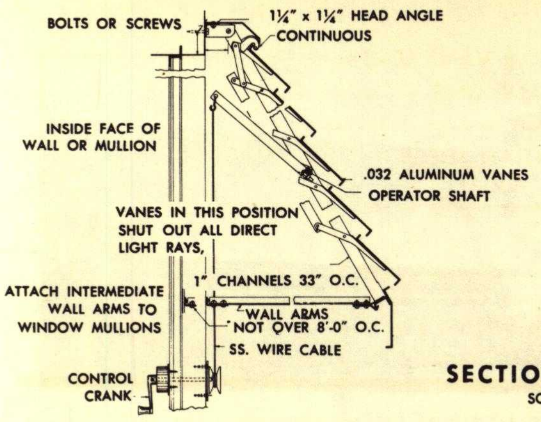
CONSTRUCTION: Solar Canopy louver sections shall consist of die formed vanes bolted into enclosing channels as detailed. Vanes, channels and enclosing facia shall be 5052-H34 aluminum ....*.... gauge. Canopy and channels to be bolted to web of outrigger beams. Outriggers shall be of 6" aluminum I-beams attached to LEMLAR standard cast aluminum brackets securely anchored to building construction with ½" bolts. Anchor bolts shall be furnished by manufacturer, and shall be placed by the general contractor, positioned to template furnished by the manufacturer. *. *(.050 gauge for 30# live load, .040 gauge for 15# live load).*



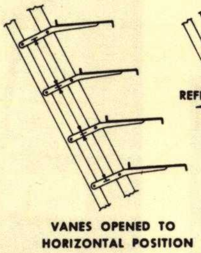
LOS ANGELES COUNTY GENERAL HOSPITAL
LEMLAR Solar Canopies, installed after occupancy

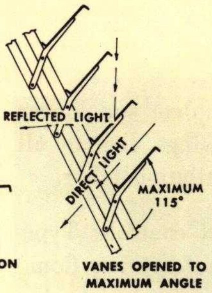
VENETIAN AWNINGS

FOR SUN CONTROL OVER PROJECTING SASH

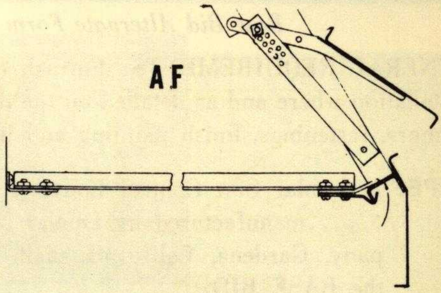

BOLTS OR SCREWS
1¼" x 1¼" HEAD ANGLE CONTINUOUS
INSIDE FACE OF WALL OR MULLION
.032 ALUMINUM VANES
OPERATOR SHAFT
VANES IN THIS POSITION SHUT OUT ALL DIRECT LIGHT RAYS,
ATTACH INTERMEDIATE WALL ARMS TO WINDOW MULLIONS
1" CHANNELS 33" O.C.
WALL ARMS NOT OVER 8'-0" O.C.
SS. WIRE CABLE
CONTROL CRANK

SECTION
SCALE: ¾" = 1'-0"


VANES OPENED TO HORIZONTAL POSITION



VANES OPENED TO MAXIMUM ANGLE



When projecting sash or outswinging casements prevent the use of louvers close to the windows LEMLAR Venetian Awnings can be used to provide adjustable sun control. As the details show, the awnings do not interfere with the operation of the sash. The Venetian Awnings are particularly useful for providing sun control on existing buildings. They are also available with vanes semi-adjustable (Type AF).

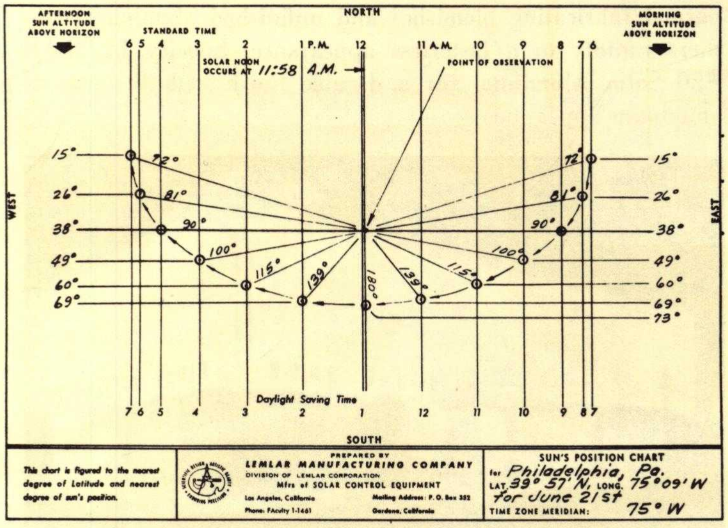
SPECIFICATIONS, AC AWNINGS

CONSTRUCTION: Vanes shall be roll formed of .030 gauge 5052-H34 Aluminum. They shall be 5″ wide, spaced 4⅝″ on centers, and overlap when closed. Vanes to be mounted on .064 gauge 5052-H34 aluminum tilt arms which are supported on cadmium plated brass bearings mounted on vertical channel supports not over 33″ on centers. Tilt arms shall be connected together with parallel arc arms which are operated by lever arms mounted on horizontal operating shaft. Awning framework shall be of galvanized steel channel and angle construction. All tilt arm and operating shaft bearings shall be of brass. Valance shall be of same material as vanes with lower edge turned. Note: The Lemlar awning, Type AC, is covered by Patent No. 2239242.

OPERATION: Awning vanes shall be operative through an arc of 115° by winding a flexible stainless steel cable on a drum mounted on the outside of wall and controlled by a shaft extending through wall to an inside crank and adjustable friction control housing.

LEMLAR SUN ANGLE CHARTS

LEMLAR Sun Angle Charts are especially prepared for each location, showing the sun's angular position for each hour of the day, (direction and altitude), accurate to 1°, and without need for interpolation for seasonal extremes. Each set contains three charts to cover the four seasons. LEMLAR Sun Angle Charts are available, without charge, for your project location. Your request. directed to the home office will receive prompt attention.



TYPICAL SUN ANGLE CHART plots changing azimuth and elevation angles for each hour from sunrise to sunset. Note that in this latitude, maximum elevation of summer sun is only 73°.

Sun Louvers reduce solar heat gain one ton per 100 sq. ft. of glass

(on east and west elevations)

Here are the figures compiled from air conditioning engineering data, confirmed by manufacturers and contractors, and readily verified by mechanical engineers:

Factor 1—12,000 Btu's of heat load require 1 ton of refrigeration.
Factor 2—Air conditioning equipment costs vary from $500 to $1500 per ton of refrigeration capacity (average $1000).

BASIS: 100 SQUARE FEET OF WINDOW
Peak solar heat load per hour
per 100 sq. ft. of glass
Savings effected

	Savings effected	
	Average	**Possible**
East or West windows unshaded, 14,800 Btu LEMLAR Sun Louvers exclude 85%, = 12,580 Btu *H.V.A.C. 1957 Guide, Table 24, page 321.*	$1000	$1500
Operating costs average $70/ton/year $70 x 20 (yrs) =	$1400	$1400
• TOTAL SAVINGS	$2400	$2900

Heat load at south windows is about ⅓ that shown above, in summer, more in winteer. *In fact, it is not unusual for cooling to be required in south offices during freezing weather if south windows are unshaded.* LEMLAR Sun Louvers will reduce the heat load 85% at south windows, too. *(Write for comprehensive data on this subject.)*

LEMLAR
SUN LOUVERS
BASIC SPECIFICATIONS

Base Bid Alternate Form

GENERAL REQUIREMENTS: Furnish complete sun louver installation where and as detailed on the drawings. Include all anchors, fastenings, finish painting and installation labor.

TYPE: 1. Lemlar Sun Control Louvers, and controls, Type ......manufactured by Lemlar Manufacturing Company, Gardena, California shall be furnished under the BASE BID.

2. ALTERNATE PROPOSAL: If the contractor wishes to submit a proposal on any other make of sun control louvers as an alternate, he may do so. State the amount to add or deduct if the alternate is approved and attach complete descriptive and technical data on proposed equipment.

3. Substitution of equipment other than the manufacture specified will not be permitted after the general contract has been signed.

SHOP DRAWINGS: Submit shop and erection drawings and obtain design approval before fabricating the equipment. The general contractor shall confirm critical dimensions of adjoining work to the manufacturer as soon as practical.

CONSTRUCTION: *(Use paragraphs shown on page where louver type is detailed.)*

OPERATION: *(Use paragraphs shown on page where lower type is detailed.)*

CONTROLS: *(Select proper paragraphs according to method of control.)*

MANUAL: Manual control cranks for louver operation shall be located as shown on plans and details.

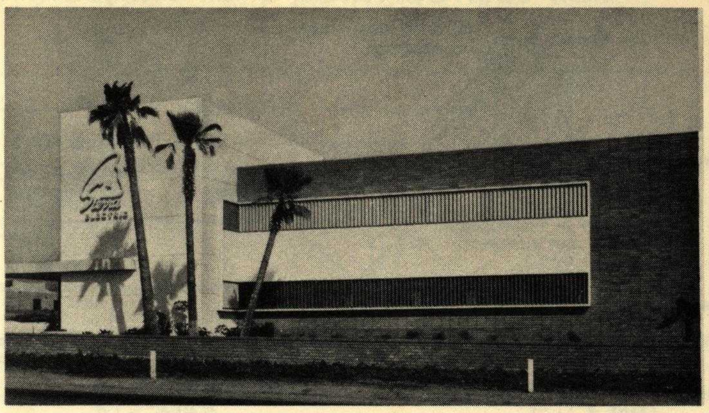
(MANUAL ELECTRIC, SOLAR TIME CONTROL, OR PHOTOELECTRIC CONTROL SYSTEM—use proper paragraphs from page 6.)

PAINTING: All parts of louvers shall be chemically treated for paint adhesion, primed with zinc chromate primer or mill alodized treatment, and finished with two coats best grade baked synthetic enamel in one of manufacturer's standard colors, as selected by architect.

(See Optional finishes.)*

INSTALLATION: Installation shall be done according to plan and approved shop drawings, by or under the supervision of the manufacturer or his authorized representative. All units shall be installed square, level and plumb, and all moving parts shall be adjusted to operate freely without binding or warping.

WARRANTY: All parts of this equipment shall be guaranteed for a period of two years from date of completion and acceptance of this work. Any and all parts failing within this period shall be repaired or replaced by the manufacturer without charge.



SIERRA ELECTRIC & MFG. CO., Los Angeles
Designed by Ted R. Cooper Co., Los Angeles
LEMLAR type VJ-9 Sun Louvers

SUGGESTIONS REGARDING FINISHES: Lemlar standard finish is the finest industrial synthetic baking enamel available, selected to provide a finish with exceptional durability and baked on in our infra-red oven. It is available in 22 standard colors shown on the color chart. Use of standard finish and color helps expedite delivery. There is a charge for matching special colors, or more than one standard color per job.

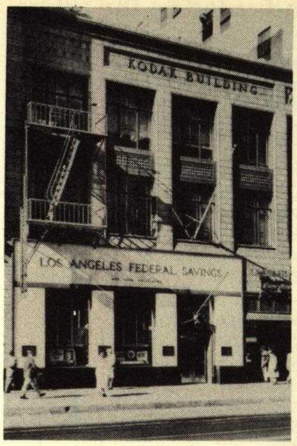
SCIENTIFIC DESIGN ARTISTIC BEAUTY ENDURING PRECISION

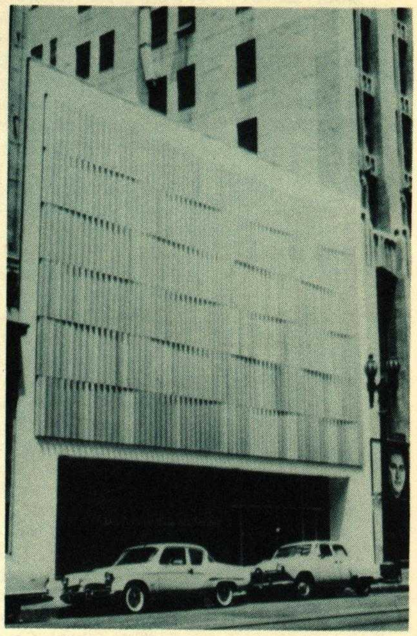
OPTIONAL FINISHES: Lemlar sun louvers can be furnished with anodized (Alumilite) finish. This finish requires extra care and maintenance, however. *(Send for Data Unit #030, "Cleaning and Maintenance of Oxide Coated Aluminum").* Other finishes such as color anodized and porcelain enamel, while available, increase costs and limit the size of vanes that can be used. Consult our factory regarding your particular project. VA type vanes are available in porcelain enameled aluminum. Louvers specified in unfinished aluminum will show normal fabricating blemishes and unfinished aluminum weathers rapidly to a lusterless appearance. Specify LEMLAR #50 Satin Aluminum for a durable finish with the natural aluminum appearance.

FIRST NATIONAL BANK, Little Rock, Arkansas
Architects: Witenberg, Deloney, and Davidson, Little Rock
LEMLAR type VJ-22 Sun Louvers, illuminated for dramatic night-time effect

EXTERIOR sun control simplifies air conditioning and reduces its cost,—ask your engineer.

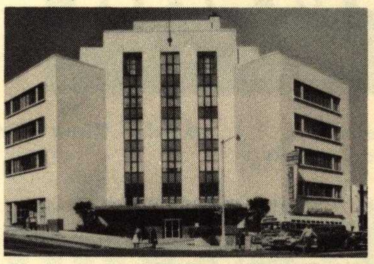
A CHANGE FOR THE BETTER,—ALWAYS

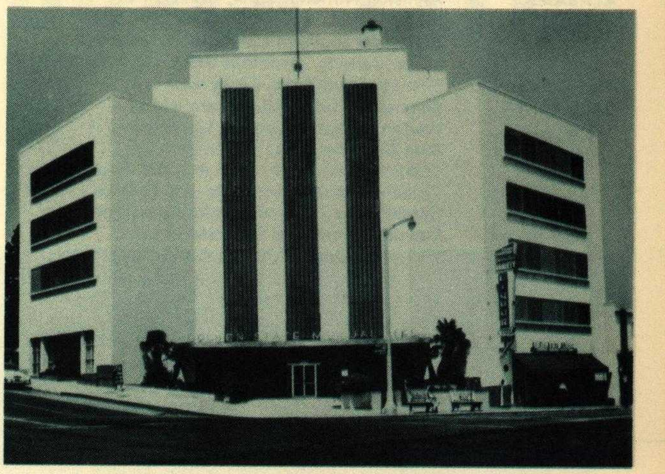




An air-conditioning savings of over $11,500 more than paid for the louvers. Old construction back of the louvers was left untouched.

LOS ANGELES FEDERAL SAVINGS AND LOAN, Los Angeles
Architects: Douglas Hannold and John Rex, Los Angeles
Louver screen of LEMLAR VJ-12 louvers. The interesting shadow effect was accomplished with four extra vanes in alternate tiers.

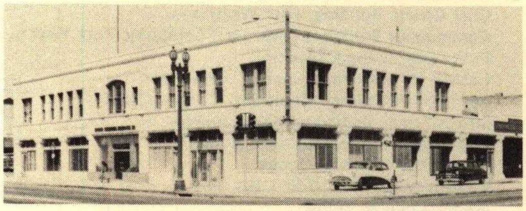


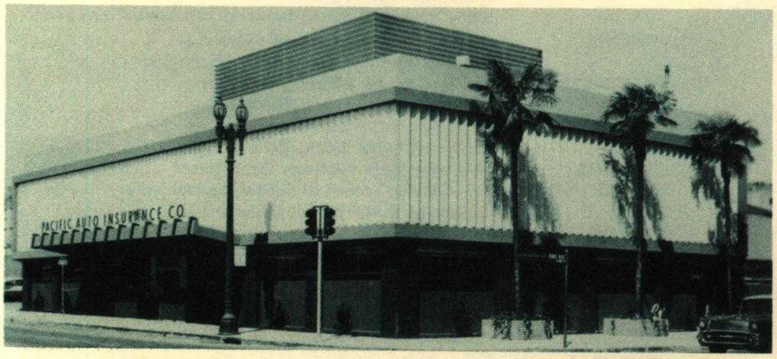


GOLDEN STATE MUTUAL LIFE INS. CO., Los Angeles
LEMLAR type VJ-14 Sun Louvers, Solar-Time Controlled with Photo-electric over ride; and LEMLAR type J-5 Sun Louvers.

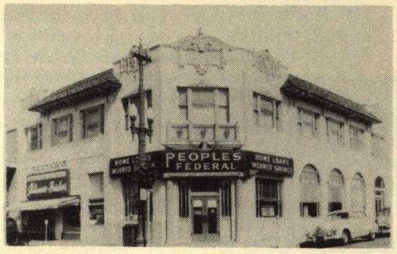
SCIENTIFIC DESIGN ARTISTIC BEAUTY ENDURING PRECISION

With Lemlar Louvers, handsome new facades can be created on any building at modest cost. Additions to existing structures can be integrated easily and economically by applying louvers on old and new portions. All types of Lemler Louvers can be employed to mask old walls, conceal scattered window patterns and present an attractive, uniform appearance. Buildings "dated" by old-fashioned fenestration are modernized at minimum cost.

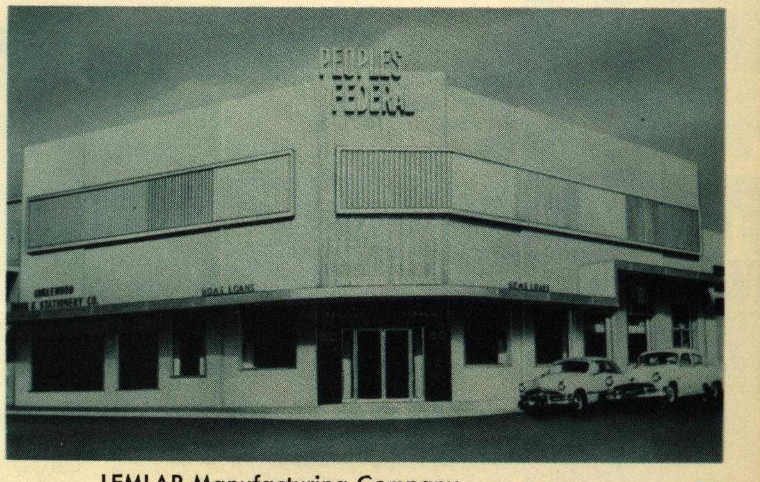




PACIFIC AUTO INSURANCE CO., Los Angeles
Architects: Yates and Szeptycki, Los Angeles
LEMLAR type VJ-18 Sun Louvers saved the owner $2,124 on this modernization project.



PEOPLE'S FEDERAL SAVINGS & LOAN ASSN.,
Inglewood, California
LEMLAR type VJ-9 Sun Louvers complement the new design



Buildings constructed of materials such as brick—which is itself timeless—regain their modernity and increase considerably in both beauty and value with addition of LEMLAR Sun Control Louvers.

SOLAR CONTROL by LEMLAR

THERE IS NO SUBSTITUTE FOR EXPERIENCE.

A small fraction of LEMLAR experience is indicated by the list below.

Key: * ***Electric Operators*** ** ***Solar Time Controls*** *** ***Photoelectric Controls***

ARIZONA	Park Central Medical Building, Phoenix
	State Highway Department, Tucson
	Valley National Bank, Phoenix (5 buildings) **
ALABAMA	Anniston National Bank, Anniston *
	Ford Motor Company, Sheffield **
	Marathon Southern Corporation, Maheola
	Union Carbide, Mountain Brook (Birmingham)
ARKANSAS	First National Bank, Little Rock
CALIFORNIA	Bakersfield City Hall, Bakersfield **
	Welton Becket residence, Los Angeles *
	Blue Cross Building, Los Angeles **
	Chohon Buildings #1 and #2, Los Angeles **
	Citizens National Bank, Beverly Hills **
	Consolidated Electrodynamics Corp., Pasadena **
	Douglas Aircraft, El Segundo **
	Eastman Kodak Company, San Francisco **
	First Federal Savings and Loan, Alhambra **
	General Casualty Insurance Company, Birlingame **
	General Insurance Co. of America, Panorama City **
	Grandview Building Company, Beverly Hills **
	Hutchinson Office Building, Reseda **
	Link Belt Company, Montebello **
	Welton Becket Office, Los Angeles *
	Lee Miller Company, Gardena ***
	National Broadcasting Company, Burbank **
	North-of-The-River High School, Oildale *
	Pacific Telephone and Telegraph Co., Orange **
	Pacific Telephone and Telegraph Co., Burbank **
	Prudential Insurance Company, Los Angeles **
	Remington-Rand, Los Angeles *
	Ryan Aeronautics, San Diego **
	San Diego Law Library **
	Shaffer Road School, Atwater *
	Solar Aircraft Company, San Diego **
	Stanislaus-Merced Building and Loan, Turlock *
	Sunset International Building, Beverly Hills **
COLORADO	Casey Jr. High School, Boulder
	Blue Cross-Blue Shield Building, Denver ***
	St. Joseph Hospital, Del Norte
CONNECTICUT	New Britain General Hospital, New Britain
DELAWARE	Delaware City Power Station, Delaware City
DISTRICT OF COLUMBIA	Washington Permanent Bldg. Assn., Washington *
FLORIDA	Central and South Florida Flood Control, W. Palm Beach
	First Federal Savings and Loan, Daytona Beach
	Sarasota Bank and Trust, Sarasota
GEORGIA	Cobb Exchange Bank Building, Marietta
	Georgia Department of Public Safety, Atlanta
IDAHO	Sunnyside School, Weiser
ILLINOIS	Alton Bank, Alton
	Lincoln Federal Savings and Loan, Berwyn **
KANSAS	Cessna Aircraft, Prospect
	Rainbo Baking Company, Wichita
LOUISIANA	Belle Chase High School, Belle Chase **
	Caddo Parish Schools, Shreveport (5)
	Union Carbide and Carbon, New Orleans **
MARYLAND	Holy Cross Preparatory School, Rockville
	South Hagerstown High School, Hagerstown
	St. John's College, Annapolis **
MICHIGAN	Kalamazoo County Center Building, Kalamazoo
	University of Michigan, Science and Nursing, Ann Arbor
MINNESOTA	Alexandria Telephone Company, Alexandria
MISSISSIPPI	Lamar Life Broadcasting, Jackson
	State Bank and Trust, Brookhaven
MISSOURI	Jewish Hospital, St. Louis
	Principia College (Central Building), St. Louis *
MONTANA	Anaconda Sr. High School, Anaconda
	Hart-Albin Building, Billings
NEBRASKA	Scottsbluff City Hall, Scottsbluff
NEVADA	Boulder City High Schools, Boulder City
	First National Bank of Nevada, Las Vegas
	Southern Nevada Power Company, Las Vegas
NEW JERSEY	Penn Fruit Company, Pennsauken **
	Supplee-Wills-Jones Milk Company, Camden ***
NEW MEXICO	Albuquerque Federal Savings and Loan, Albuqueque
	Lea County Bank, Hobbs **
NEW YORK	Penn Fruit Company, Inc., Staten Island **
	Firestone Tire and Rubber Company, Cheektowaga
NO. CAROLINA	General Electric Company, Hickory
	News and Observer Building, Raleigh
OHIO	Firestone Tire and Rubber Company, Akron
	Provident Bank, Sharonville
OKLAHOMA	Dowell Building, Tulsa
	Home Federal Savings and Loan, Tulsa **
	Security Bank Building, Blackwell
OREGON	Bank of Portland, Portland
	Garfield School, Corvallis
PENNSYLVANIA	Gulf Oil Company, Bala Cynwyd (Philadelphia)
	Nice Ball Bearing Company, Philadelphia
SO. CAROLINA	Carlisle Finishing Plant, Carlisle **
	Clemson College, Clemson *
	Wilson High School, Florence *
TENNESSEE	Firestone Tire and Rubber Company, Memphis
	Murfreesboro Bank, Murfreesboro
TEXAS	Champlin Oil and Refining Company, Fort Worth **
	Civil Courts Building, Fort Worth ***
	Commercial Standard Insurance Company, Fort Worth **
	First Federal Bank, Austin
	LaMar State College Library, Beaumont
	Reynolds Aluminum Company, Corpus Christi
	Straus Frank Company, San Antonio
UTAH	Logan Agricultural College, Logan
	Marquardt Aircraft, Ogden
	University of Utah, Salt Lake City
	Weber College, Ogden
	Blue-Cross Blue Shield Building Salt Lake City ***
VIRGINIA	Central National Bank, Richmond **
	Reynolds Metals, Main Office, Richmond ***
WASHINGTON	A.A.A. Club of Washington **
	Baker Jr. High School, Tacoma
	W. T. Grant Company, Yakima
	Pacific National Bank, Bellevue **
WYOMING	Wyoming State Highway Department, Cheyenne ***
BELGIAN CONGO	Leopoldville Technical School, Leopoldville
	Congoreal Building, Leopoldville
CANADA	Bank of Montreal, Burnaby, and Vancouver, B.C.
	Vancouver Public Library, Vancouver ***
GUAM	Bank of America, Agana
HAWAII	Finance Factors Building, Honolulu
	Hawaiian Pineapple Company, Honolulu
	Liberty Bank, Honolulu
HONDURAS	Banco Nacional de Fomento, Teguciagalpa
	Tela Railroad Company, Tela
PHILIPPINES	Magsaysay Office Building, Manila
	National Carbon Company, Manila

LITERATURE AVAILABLE

For information on the value of exterior control and in designing and specifying sun louver installations request **LEMLAR** *literature on the following subjects.*

AIR CONDITIONING
- Fundamentals of—
- —How affected by exterior shading
  - —Editorial reprints from national publications
- —Case Histories of louvered buildings

ALUMINUM
- Corrosive resistance of—
- Finishes for—
- Alumilite finish—care and maintenance of

ARCHITECTURAL EXAMPLES of Sun Louver installations by LEMLAR (photographs)

BRIGHTNESS BALANCE and glare control for classrooms.

COLOR CHART, LEMLAR standard enamel finish.

DRAFTSMANS DETAILS, to 3″ scale, of each type of LEMLAR Sun Louvers. Unbound sheets for easy tracing, includes complete specifications.

REFLECTED GLARE STUDIES of LEMLAR Type SF-10 louvers

SOLAR CONTROL—A basic need.

SUN ANGLE CHARTS for your specific location.
(See page 13)

LEMLAR SUN LOUVERS

SCIENTIFIC DESIGN · ARTISTIC BEAUTY · ENDURING PRECISION

LEMLAR MANUFACTURING COMPANY
A DIVISION OF THE **LEMLAR CORPORATION**
Los Angeles, California FAculty 1-1461
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